INTERNATIONAL AND PRODUCT DIVERSIFICATION –

WHICH STRATEGY SUITS FAMILY MANAGERS?

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Short title: Which strategy suits family managers?

Keywords: family management, internationalization, product diversification, human capital social capital

Research summary

This paper explores the impact of family and professional managers on performance and how this relationship is affected by international and product diversification. Using a dataset of 262 German firms from 2000 to 2009, we find that an increasing proportion of family managers on the management board is associated with higher performance. This relationship is negatively moderated by higher levels of international diversification but reinforced by increased product diversification due to differences in the human and social capital between family and professional managers. Firms with a significant presence of family members on the top management team (TMT) face a choice of either adopting a corporate strategy that runs counter to "global-focusing" or adjusting the balance of family and professional managers in the TMT.

Managerial summary

Deciding the extent of family involvement on the executive team is a key strategic decision. While our research supports the general proposition that family managers will enhance performance we show they don't have the same positive impact in all situations. More precisely, we show that family managers are more suited to lead diversification than internationalization. If a family firm wants to go international it therefore is sensible to increase the proportion of professional managers on the executive team. Diversifying into new product markets, however, does not require outside expertise commonly associated with professional managers.

Introduction

Is the effect of family managers on performance positive or negative when compared to the impact of professional managers? Increasingly research is suggesting that the answer to this critical question depends on understanding the contextual factors that affect the relationship between the involvement of family and professional managers and performance (Chang & Shim, 2015; Miller, Le Breton-Miller, Minichilli *et al.*, 2014; Wright, Chrisman, Chua *et al.*, 2014). A firm's levels of international and product diversification constitute such key contextual factors as they shape the specific strategic and administrative challenges that family and professional managers are faced with (D'Angelo, Majocchi, & Buck, 2016; Gomez-Mejia, Makri, & Kintana, 2010; Sciascia, Mazzola, & Chirico, 2013). In contrast to many other contextual factors considered previously (Miller, Minichilli, & Corbetta, 2013), both aspects of corporate scope are more directly affected by strategic choices. Understanding their impact is thus of particular importance. In this paper we

therefore explore how the relationship between the involvement of family and professional managers and performance is shaped by international and product diversification. Increased international diversification, as we will argue, can be detrimental to the benefits of family mangers whilst product diversification can enhance these benefits.

Conceptually, we focus on the different resources that family and professional managers offer to the firm in terms of their respective managerial human and social capital. Such resources have been used to explore the impact of family and professional managers on family firm internationalization (D'Angelo *et al.*, 2016; Kontinen & Ojala, 2011a, 2011b; Kraus, Mensching, Calabrò *et al.*, 2016) as well as family firm performance (Sanchez-Famoso, Akhter, Iturralde *et al.*, 2015). Differences in a firms' endowment with these complementary and competitively relevant resources (Acquaah, 2012; Geletkanycz, Boyd, & Finkelstein, 2001) are expected to influence strategy and performance outcomes, particularly at the level of the top management team (TMT) (Minichilli, Corbetta, & MacMillan, 2010). The effect on performance is, however, likely to differ depending on the extent of international and product diversification. Notably, the human and social capital of family managers is typically locally rooted and grounded in relatively tight sets of relationships and communalities (König, Kammerlander, & Enders, 2013). This suggests that family managers are well positioned to manage firms as long as these are neither highly diversified nor internationalized but the question arises how their impact on performance, compared to that of professional managers, changes when levels of international and product diversification increase. Internationalization presents a particular challenge to family managers as the "diversity of national contexts in terms of consumers' behaviours, legal and administrative requirements, and market conditions increase significantly the complexity that managers should handle" (D'Angelo *et al.*, 2016: 4). While product diversification also increases strategic and administrative complexity,

family managers can leverage their social and human capital across product-market domains more easily. Specifically, we hypothesize that a greater representation of family, rather than professional managers, on the TMT will impact negatively on performance in internationally diversified firms whereas the reverse is true for product diversification. Contributing to efforts in resource-based theory to better understand the contextual factors that shape the performance benefits of resources (Barney & Mackey, 2016; Lioukas, Reuer, & Zollo, 2016; Nyberg, Moliterno, Hale Jr *et al.*, 2014; Teece, 2011) we find support for these hypotheses using a panel data set of 262 German firms from 2000 to 2009.

This study extends recent research on the role of family in the context of internationalization by considering performance implications (Arregle, Naldi, Nordqvist *et al.*, 2012; Calabrò, Torchia, Pukall *et al.*, 2013; Kraus *et al.*, 2016; Zahra, 2003). Thereby it contributes to recent efforts to better understand how contextual factors shape the relationship between family management and performance (Miller *et al.*, 2013). It shows that choices related to corporate strategy – i.e. the decision to internationalize or diversify – affect this relationship and hence performance. It thus sets decisions about the involvement of professional and family managers in the wider strategic and organizational context (D'Angelo *et al.*, 2016) and demonstrates that the involvement of family and professional managers on the TMT and choices about a firms' corporate strategy should be considered jointly. In doing so we respond to calls to better assess the heterogeneity of family involvement (Kraus *et al.*, 2016; Pukall & Calabrò, 2014) and the impact of TMT attributes on performance (Cooper, Patel, & Thatcher, 2014; Mihalache, Jansen, Van Den Bosch *et al.*, 2012).

Our theoretical approach complements earlier studies exploring the impact of contextual factors which built on agency and stewardship considerations (Banalieva & Eddleston, 2011; Chang *et al.*, 2015; Miller *et al.*, 2013) by focusing on the managerial resources and capabilities of the TMT as

important factors in a firms' competitive success (Acquaah, 2012; Hambrick, Humphrey, & Gupta, 2015; Hutzschenreuter & Horstkotte, 2013). This contributes to resource-based theorizing about the performance consequences of family management (Gedajlovic, Carney, Chrisman *et al.*, 2012; Sirmon & Hitt, 2003) by establishing how contextual factors affect the performance benefits of the key resources of managerial and social capital contributed by family and professional managers. Specifically, we show that, when considering profitability, firms with significant presence of family members on the TMT face a choice of either adopting a corporate strategy that runs counter to the typical "global-focusing" approach (Meyer, 2006) or adjusting the balance of family and professional managers in the TMT.

Theory and Hypothesis Development

Differences in the managerial and social capital of family and professional managers

Previous research suggests that the TMT constitutes a key competitive resource of the firm and that managers' endowment of managerial human and social capital is central to their impact on performance (Adner & Helfat, 2003; Hitt, Biermant, Shimizu *et al.*, 2001). To the extent that family and professional managers differ systematically in the human and social capital they contribute to the firm, we can expect differences in their involvement in the management of the firm to be reflected in performance outcomes (Acquaah, 2012; Banalieva, Eddleston, & Zellweger, 2015; Castanias & Helfat, 2001; Sirmon *et al.*, 2003) particularly at the level of the TMT (Haynes & Hillman, 2010; Sundaramurthy, Pukthuanthong, & Kor, 2014).

Human capital reflects the managerial skills and knowledge that are acquired through learning (Adner *et al.*, 2003; Hitt *et al.*, 2001; Kor & Mesko, 2013). A number of factors lead family

managers to acquire human capital that can impact positively on performance in comparison to professional managers. Family managers often gain early and deep exposure to the family firm and develop a significant stock of knowledge and skills (Bertrand & Schoar, 2006; Miller & Le Breton-Miller, 2005; Miller *et al.*, 2013) which is typically enhanced through longer terms in office (Miller & Le-Breton Miller, 2006). Family managers are therefore likely to acquire greater levels of firm specific expertise and tacit knowledge that can be used to enhance value creation in the firm (Acquaah, 2012; Anderson & Reeb, 2004; Desender, Aguilera, Crespi *et al.*, 2013; Raheja, 2005; Sirmon *et al.*, 2003). Early and close involvement in the firm thus helps family managers to develop valuable human capital, including firm specific skills that can be expected to impact positively on firm performance. This effect can be enhanced further in TMTs characterized by a substantial involvement of family managers due to the effect of positive group dynamics (Ensley & Pearson, 2005; Sirmon *et al.*, 2003). A greater involvement of family managers on the TMT can, however, also lead to negative consequences. Nepotism can lead to the appointment of managers with insufficient human capital. Family members may invest less in education and training as they rely on a lifetime guarantee of holding their management position (Bloom & Van Reenen, 2006). Such effects can also impact on professional managers who can take this as a signal of closed routes to promotion leading talented managers to exit the organization or limit their effort (Bertrand *et al.*, 2006). In contrast to family managers, professional managers on the TMT are selected from a larger pool of managerial talent (Burkart, Panunzi, & Shleifer, 2003; Gomez-Mejia, Nunez-Nickel, Jacobson *et al.*, 2007b; Villalonga & Amit, 2006) and will typically be more experienced when appointed to senior positions (Pérez-González, 2006). As a result of the more intensive competitive selection process, professional managers will thus, on average, possess greater generic managerial human capital and managerial talent (Chang *et al.*, 2015) and offer a wider range of capabilities

(Yildirim-Öktem & Üsdiken, 2010) although the human capital of individual family managers may be equal to, or greater than that of individual professional managers.

Social capital is the set of social relationships that gives an individual influence as well as access to knowledge, information and resources (Acquaah, 2012; Adner *et al.*, 2003; Sundaramurthy *et al.*, 2014). Although interdependent (Kor *et al.*, 2013), social capital differs from human capital in that it is established through "investment in and maintenance of social networks rather than investments in personal attributes" (Sauerwald, Lin, & Peng, 2016: 501). A number of factors differentiate the social capital of family managers from that of professional managers. First, family managers are able to draw on often long established relationships that cut across the family and firm domains (Habbershon & Williams, 1999; Habbershon, Williams, & MacMillan, 2003; Miller *et al.*, 2013), creating the potential for "unique and abundant" social capital (Pearson, Carr, & Shaw, 2008). Second, family managers are more likely to be perceived by external stakeholders as speaking for the firm (Miller, Lee, Chang *et al.*, 2009; Miller *et al.*, 2013), leading to unique and close ties to internal and external stakeholders (Berrone, Cruz, & Gomez-Mejia, 2012). Third, as social networks are developed over time (Sauerwald *et al.*, 2016) and networks and interrelationships are often defining characteristics of families (König *et al.*, 2013), the social capital of individual family managers, and that of the family as a collective, are mutually reinforcing and interdependent. The continuity provided by family managers thereby enables them to more effectively maintain, exploit and develop these networks (Le Breton-Miller & Miller, 2006; Sirmon *et al.*, 2003). In the terminology of the resource-based view this makes family based social capital imperfectly imitable and therefore a potential source for competitive advantage (Pearson *et al.*, 2008).

The social capital of family managers can therefore generate a substantial positive impact on performance. It is not without limitations, however. First, the very "established" and interconnected nature of family social capital can hinder innovativeness and renewal (Berrone *et al.*, 2012) and limit its utility in rapidly changing contexts (Acquaah, 2012). Second, although individual family managers will offer variations in the social capital they bring to the firm, the overlaps between the social capital of family managers will be greater than amongst professional managers. A greater involvement of professional managers is thus able to broaden the range of social capital available to the firm. Third, as professional managers will be selected for their role through a more competitive process, there is greater likelihood that the social capital of the appointee can be aligned with the needs of the firm than is the case with family managers.

Overall, family and professional managers are thus likely to differ in terms of the human and social capital they offer a firm. We can therefore expect the relative prevalence of family and professional managers on the TMT to affect performance. A greater involvement of professional managers can increase the breadth and diversity of human and social capital available to the firm. This will cover a wider range of a firms' managerial and competitive requirements, an important factor in the ability to leverage performance benefits from the available social and human capital (Kor *et al.*, 2013) and, similar to the effects of increased "board capital", may lead to positive performance effects (Hillman & Dalziel, 2003; Sundaramurthy *et al.*, 2014). These potential benefits of professional managers may, however, be curtailed in a number of ways. First, an important caveat is that the selection of professional managers in family firms can itself be biased, as the fit with the family is likely to be a particular consideration. Limitations that family managers face are likely to be shared – at least in part – by professional managers when the ability to work with the family matters more than qualifications. Where this is the case, the potential advantages associated with

the selection of professional managers will be limited. Second, investment by families in the development of family managers through education and training can offset some of the advantages generated by the greater pool of professional managers. (Aguilera & Crespi-Cladera, 2012; Pérez-González, 2006).

Whilst the potential generic advantages of professional managers can therefore be reduced, there is less scope for professional managers to overcome key advantages of family managers. Professional managers are unlikely for example to be perceived by external stakeholders as speaking for the firm and therefore will not be able to build the same unique and close ties as family managers. Even when professional managers are chosen to fit the family, family managers are likely to offer greater levels of firm specific human capital and highly developed social capital that can underpin informational and relational competitive advantage (Gedajlovic *et al.*, 2012).

Given the difficulty of replicating the benefits of family mangers' human and social capital the overall effect of a higher proportion of family managers on performance is thus more likely to be positive. Recent empirical studies from Miller *et al.* (2013) and Kowalewski *et al.* (2010) point in a similar direction as they show the positive impact of family CEOs on performance. It is also in line with the spirit of the more general argument that family firms outperform non-family firms (see meta-analysis of 380 studies by Wagner, Block, Miller *et al.*, 2015 for evidence). Hence, we offer the following hypothesis:

Hypothesis 1: A higher proportion of family members on the TMT has a positive impact on firm performance.

Although there is cause to expect a positive relationship between family management and performance, this will not be true in all situations (Miller *et al.*, 2014; 2013). Notably, the baseline account of the relationship between family management involvement and performance does not

capture the possible effect that different contextual settings may have on the value of the human and social capital offered by family and professional managers. International and product diversification constitute two central strategic choices that shape such contextual conditions (Carpenter, 2002). In the following we therefore introduce and explore how these factors affect the impact that human and social capital offered by family and professional managers may have on performance in order to ask under which contextual conditions family or professional management is more likely to have a more positive effect.

Family management, performance and international diversification

A key consequence of international diversification is that it increases managerial complexity (Alessandri & Seth, 2014; Hitt, Hoskisson, & Kim, 1997; Singla, Veliyath, & George, 2014). As international diversification leads family managers into areas "where they are inexperienced new players" (Gomez-Mejia *et al.*, 2010: 229) and may lack the necessary skills (Zahra, 2003), the value of the highly specific human capital of family managers can be diminished. It may even turn into a "hindrance" (Bhaumik, Driffield, & Pal, 2010) reducing, for example, the ability to "recognize and utilize unfamiliar knowledge" (Kor *et al.*, 2013: 240). Moreover, while some family managers may have an international outlook and offer substantial international experience, the availability of the highly complex and specific skills required by internationalization (Graves & Thomas, 2008) in a given family, is likely to be more limited than in the open market of professional managers, particularly as families are often characterized by a strong attachment to the business culture of its home country (Bhaumik *et al.*, 2010). This means that while it may be possible to draw on family managers with appropriate human and social capital at lower levels of internationalization, the likelihood to find family managers with appropriate profiles will decrease with increasing levels of international diversification.

Increasing international diversification can, additionally, dilute the benefits of family specific social capital. Drivers of family social capital are stability of the family nucleus and dynasty, frequent interactions among family members, interdependence, and closure (Arregle, Hitt, Sirmon *et al.*, 2007). Such social capital can be most readily established and leveraged if firms are not internationally diversified or only to a limited extent. As internationalization very often requires norms to be adapted to foreign cultures, it can lead to a plurality or a dilution of norms, destabilizing social relations within the family. Internationalization often requires foreign assignments of family managers and the increase of physical and cultural distance reduces interactions among family members. Similarly, with increasing internationalization the density (closure) of the social network diminishes. Increasing cultural distance, that implies differences in values, mindsets, and norms as well as losses in coordination, information and communication that comes with international diversification (Gomez-Mejia, Makri, & Kintana, 2010), very likely mitigates the formation of family social capital. Moreover, family managers are less likely to be able to leverage enhanced trust throughout the firm as trustworthiness has been shown to decline when individuals are from different countries (Glaeser, Laibson, Scheinkman *et al.*, 2000). At lower levels of international diversification the existence of strong norms, values, trust and relationships among family members may remain sustainable and help limit some of the managerial complexities associated with internationalization. As international diversification increases it will, however, become more and more difficult to sustain the extent of interaction and interdependence required to maintain the advantages of family based social capital (Arregle *et al.*, 2007; Pearson *et al.*, 2008). As a consequence, family social capital will be less of a unique advantage in more highly internationally diversified firms.

While international diversification can therefore reduce the potential benefits offered by family managers, the opportunities provided by greater involvement of professional managers are enhanced even when their selection takes family fit into consideration. International activities require "specific social capital in the form of managerial knowledge and capabilities" (D'Angelo *et al.*, 2016), as strategies have to be adapted to local markets and financial and risk management become more complex. Hence, internationally diversified firms will benefit from professional management more likely to contribute such social capital (Sciascia, Mazzola, Astrachan *et al.*, 2012), providing the firm with the range of social capital and managerial resources needed to seize and exploit opportunities in international markets (Liang, Wang, & Cui, 2014). Particularly in the context of international diversification businesses will benefit from the greater involvement of more 'cosmopolitan' professional managers (Westhead, Cowling, & Howorth, 2001). These advantages generated by the larger pool of professional managers are likely to become more pronounced as the level of internationalization increases.

In firms with a greater proportion of professional managers in the TMT, there are therefore more opportunities to bring in managers with appropriate human and social capital. Senior management teams that involve professional managers to a greater extent are less homogenous (Chang *et al.*, 2015; Ling & Kellermanns, 2010) extending the range of managerial human and social capital required to manage the complexity of an internationally diversified firm (Bennedsen, Nielsen, Perez-Gonzalez *et al.*, 2007; Gomez-Mejia *et al.*, 2010) as well as increasing the diversity of information, perspectives and expertise available for decision-making which is particularly important in internationally diversified firms (Luo & Chung, 2005; Nielsen & Nielsen, 2008; Sciascia *et al.*, 2013). These effects will be reinforced further as with a greater proportion of family managers on the TMT other voices are likely to be less influential (Arregle *et al.*, 2012; Leitterstorf

& Rau, 2014). Overall, we therefore anticipate that increasing levels of international diversification will have a negative impact on the relationship between the involvement of family managers on the TMT and performance. Accordingly, we offer the following hypothesis:

Hypothesis 2: International diversification negatively moderates the relationship between the proportion of family members in the TMT and performance.

Family management, performance and product diversification

Family managers are well positioned to manage narrowly focused businesses as they can rely on experience which is locally rooted and grounded in relatively tight sets of relationships and communalities (König *et al.*, 2013). The question is whether family managers are also well equipped for higher levels of diversification. As with international diversification, product diversification will be associated with greater managerial and organizational complexity (Hitt, Hoskisson, & Ireland, 2005; Hitt *et al.*, 1997; Jones & Hill, 1988). In contrast to international diversification the disruptive impact of product diversification on the human and social capital of family managers, is, however, much more limited as it neither involves the same substantial risk of disrupting existing close family ties (Arregle *et al.*, 2007) nor the substantial challenges of cultural and institutional diversity. As we shall argue the main advantage of family managers in this context, their social capital, can therefore be sustained more effectively.

Nevertheless, increasing diversification levels are associated with increased information processing requirements and the need to understand business activities in new markets. This requires specific capabilities associated with the management of organizational diversity, the allocation of scarce resources and the development of structural configurations that facilitate coordination across multiple markets (Chang & Wang, 2007; Franko, 2004; Hitt *et al.*, 1997) which

can be accessed more readily through a greater involvement of professional, rather than family managers (Fernandez & Nieto, 2006; Muñoz-Bullón & Sánchez-Bueno, 2012). The limitations of the human capital of family managers in product-diversified firms are, however, offset by the advantages offered by their social capital. Internally to the firm the family managers' "unique" (Arregle *et al.*, 2012: 1122; Minichilli *et al.*, 2010) social capital enhances trust and minimizes agency problems within the firm, thus facilitating knowledge exchange and cooperation (Berrone *et al.*, 2012; Gomez-Mejia, Haynes-Takács, Núñez-Nickel *et al.*, 2007a). The internal social capital of family managers thus addresses some of the key challenges associated with the management of diversified firms, a factor that may be reflected in recent empirical evidence that suggests that family firms are more likely to diversify (Hautz, Mayer, & Stadler, 2013).

The main advantage of family managers in this context is, however, their external social capital. The rich external social capital and external networks, including suppliers and long-term customers (Le Breton-Miller *et al.*, 2006; Palmer & Barber, 2001) can be leveraged across multiple product-market domains, particularly as many key factors are not industry specific (Guillen, 2000). In contrast to international diversification, product diversification is also more likely to benefit from the exploitation of an established family "name" to both "signal quality" and facilitate "access to corridors of power" and other key players in the institutional environment (Bhaumik *et al.*, 2010). Notably, the greater reach across industries offered by product diversification can further enhance the social capital of family managers and their ability to leverage it effectively.

Overall, we expect that the benefits of family managers' internal and, in particular, external, social capital will outweigh the benefits of the human capital offered by professional managers in product diversified firms. We see three reasons for this. First, as the key challenge in product diversification is established by coordination costs, the social capital of managers is particularly effective in

limiting these, outweighing possible effects of potential limitations to their human capital. Second, the ability of family managers to leverage the advantages of external social capital is dependent on location. While in international diversification this can become a disadvantage, this is not the case for product diversification. Finally, as we argued above, the selection of professional managers is biased and therefore their potential advantages in terms of generic human capital likely to be diminished to some extent. We therefore expect that as product diversification increases the benefits offered by the involvement of family managers will be enhanced. We expect this effect to be present at low levels of product diversification but to strengthen with increasing levels of product diversification as the advantages of family managers can be leveraged across a wider range of product-markets. In contrast to international diversification, we therefore anticipate a positive impact on the relationship between the involvement of family managers on the TMT and performance and offer the following hypothesis:

Hypothesis 3: Product diversification positively moderates the relationship between the proportion of family members on the TMT and performance.

Method

Setting and sample

Our research focuses on the relationship between the relative involvement of family and professional managers in the TMT and performance. It examines how the level of a firms' international and product diversification moderates this relationship. We collected data for German publicly traded companies between 2000 and 2009. Sample selection was based on the CDAX, which covers all domestic companies listed on the Frankfurt Stock Exchange[1]. Germany is a

[1] The CDAX includes all German equities listed on the Frankfurt Stock Exchange in General and Prime Standard market segments and is comprised of large-caps (DAX), mid-caps (MDAX), small-caps (SDAX), and technology stocks (TecDAX) (Deutsche

suitable setting for such a study due to the structure of the governance system as well as variance in terms of ownership and diversification. Besides small family firms – which are common in most countries - Germany also hosts a number of large family firms such as BMW, VW, and Siemens, ensuring a distribution across firm size. Finally, the German corporate governance system is characterized by a two-tier system, a dual board structure in which there is a separation between the management board (Vorstand), the focus of this study, and the supervisory board (Aufsichtsrat) constituted by non-executive board members. Members of the Vorstand are legally and collectively responsible for managing the firm with the chief executive officer (CEO) acting as primus inter pares. Hence, the Vorstand can be equated with the TMT (Hutzschenreuter *et al.*, 2013). The management board is appointed by the supervisory board, which controls and monitors the actions of management. The supervisory board is elected at the annual general meeting. This special two-tier setting allows us to isolate the impact of management while controlling for governance. In line with prior literature, companies from the financial sector, utilities, and foreign subsidiaries were excluded (Anderson, Duru, & Reeb, 2012; Block, 2009; Matzler, Veider, Hautz *et al.*, 2015). After excluding firms with missing data, we ended up with a final unbalanced panel dataset yielding a total of 262 firms with 1710 firm-year observations.

Measures

Dependent variable: Firm performance is measured by return on assets (RoA) – net operating income before extraordinary items divided by total assets. RoA is widely used in strategic management and family business research - particularly in non-US settings - to assess top executive and family impact on performance (Anderson & Reeb, 2003; Cannella Jr & Shen, 2001; Carpenter,

Börse AG, 2010). It represents the full spectrum of the regulated German equities market and serves as indicator of economic development and performance.

2002; Miller *et al.*, 2013; Palich, Cardinal, & Miller, 2000; Wagner *et al.*, 2015). Annual data was obtained from the Worldscope database.

Independent variable: Family management. Many prior studies applied a dichotomous definition of family firms vs non-family firms or family management dependent on whether a family member serves as CEO or not (Block, 2012). We, in contrast, adopt a continuous measure and capture the extent of family involvement in the TMT by the number of family members on the management board divided by the total number of management board members (Klein, 2000; Matzler *et al.*, 2015). Hereby we include the full variation from 0 to 100% family managers on the top management board. This provides us with a more fine-grained understanding of family versus professional management. Under German commercial law, all members of the top management team, which as discussed above is defined here as the management board (Vorstand), are legally and collectively responsible for the management of the corporation and have to be listed in annual reports, enabling the consistent identification of the TMT (Hutzschenreuter *et al.*, 2013). Data on family members in the TMT was collected annually from the OSIRIS ownership database (Bureau Van Dijk). We used annual reports, corporate websites, firm histories and national directories to crosscheck and complete the data.

Moderator variables international and product diversification: A wide variety of measures have been used to capture a firm's *international diversification*. We rely on the geographic entropy measure as one of the most common, valid, and reliable measures to capture a firm's international diversification in terms of both the degree and scope of its international sales activities (Bowen & Wiersema, 2005; Capar & Kotabe, 2003; Goerzen & Beamish, 2003; Hitt *et al.*, 1997; Wiersema & Bowen, 2007) which has recently been used in studies focusing on the role of professional managers in internationalization (D'Angelo *et al.*, 2016). It considers both the number of

geographic segments in which a firm operates and the relative importance in sales contributed by each geographic segment (Hitt *et al.*, 1997) and is computed as $\sum P_i \ln (1/P_i)$, where P_i is the share of a firm's total sales attributed to geographic region i, and $\ln (1/ P_i)$ is the weight of each geographic region i. We used annual geographic segment sales data from the Worldscope database, supplemented by annual reports, and identified five different geographic regions: Germany, rest of Europe, Americas, Asia/Pacific/Africa and Other[2]. We standardized the measure with its theoretical maximum value[3]. After standardization, the geographic entropy has a minimum value of zero for domestic firms, rises with the extent of international diversity and has a maximum value of 1.

Product diversification is measured by the SIC-based entropy index, a measure that has been used extensively in the strategic management literature (Bowen *et al.*, 2005; Chakrabarti, Singh, & Mahmood, 2007; Wiersema *et al.*, 2007). It captures the extent of product diversity across a firm's activities by considering the number of product segments as well as their relative importance (Jacquemin & Berry, 1979; Palepu, 1985). It was computed as $\sum P_i \ln(1/P_i)$, where P_i is the share of a firm's total sales attributed to product segment (i), and $\ln(1/P_i)$ is the weight of each product segment (i) using annual Worldscope segment data from a firm's sales in each of its 2-digit SIC business segments. Again, the measure is standardized by its theoretical maximum[4]. Hence, total entropy has a value between zero for single business firms and 1 for firms equally diversified across 10 different product segments.

[2] The „other" category is reported as fifth segment in the Worldscope database if firms do not specify a certain region or country for a proportion of their sales.
[3] max geographic entropy= 1.6094 based on equal shares of sales in the five geographic segments.
[4] max product entropy = 2.3026 based on equal shares of sales in a maximum of ten different product segments which can be reported by the Worldscope database.

Control variables: We include firm, industry, and macroeconomic controls in our models. We control for *family ownership* by the portion of ownership stakes held by the family and *family governance* by the number of family members in the company's supervisory board relative to the total number of directors (Klein, 2000). Further, we include a dummy to control for the continued involvement of the *founder*. Data for these variables was taken from the OSIRIS ownership database and supplemented by data from annual reports and national directories. In line with previous studies our model controls for *firm size, age, and capital intensity* (Acquaah, 2012; Anderson *et al.*, 2003; Miller *et al.*, 2013). We measure firm size by the number of employees. Firm age is captured by the natural log of years of existence. Firm capital intensity is determined by the ratio of capital expenditures to total assets. Additional firm level controls include *firm risk*, captured by beta (Chen & Hsu, 2009; Miller, Le Breton-Miller, & Lester, 2010; Miller, Le Breton-Miller, Lester *et al.*, 2007), which was obtained from the capital asset pricing model (CAPM) and *slack resources* captured by the ratio of current assets to current liabilities (Bansal, 2005; Strike, Jijun, & Bansal, 2006). Finally, we control for *prior firm performance*, captured by a one year lag of return on equity. Annual firm level data was obtained from the Worldscope database. On the industry level we control for *industry performance* (industry RoA), *industry size* (industry total assets*), and industry competition*. To capture industry competition we follow Bowen and Wiersema (2005) and construct a concentration ratio using the size of the four largest firms in terms of sales compared to the output of the entire industry. Annual data of industry measures was generated based on the 2-digit SIC core industry of the firm across 22 OECD countries. On the macro level we controlled for *GDP growth* and the *institutional environment*. To account for home country institutional environment we drew on seven items[5] that capture the development of a country's

[5] legal and regulatory framework, government policy transparency, bureaucracy, adaptability of government policy, competition legislation, and intellectual property protection and bribing and corruption

political and legal institutions as previously used by Delios and Beamish (1999) and La Porta et al. (1998). Data was extracted from the annual editions of the World Competitiveness Yearbook (World Competitiveness Yearbook, 1993-2010). We calculated variable scores with higher values indicating more developed political and legal institutions[6].

Analysis and Results

To test our hypothesized relationships, we use panel regression analyses employing interaction terms. Due to simultaneous causality, endogeneity is a potential issue in our analysis (Bascle, 2008; Greene, 2008). Family involvement in the TMT might not only improve performance, but strong performance could also influence the desirability of continuing family management involvement and control of a firm (Anderson *et al.*, 2003; Demsetz & Lehn, 1985). Reverse causality and therefore potential endogeneity has previously also been suggested for the relationship between performance and diversification strategies (Bowen & Wiersema, 2009; Campa & Kedia, 2002). The question whether it is possible to control for all types of potential endogeneity inherent in a specific model has become a common debate in management. Considering the difficulties to find a sufficient number of appropriate and valid instrument variables – required to control for potential endogeneity due to simultaneous causality - and the downsides of an increasingly complex model, a recent editorial guideline in the *Strategic Management Journal* concluded that it is best to identify and control for the main endogeneity issue, while acknowledging others as limitations[7]. Hence, we control for potential endogeneity in the relationship between firm performance and family management – our focal relationship of interest. To account for this specific form of potential

[6] As we focus on Germany as home country only, institutional environment only varies across time as political and legal institutions gets more and more developed.

[7] http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291097-0266/homepage/ForAuthors.html, archived on 11.12.2013.

endogeneity, we apply a two-stages least square (2SLS) fixed effects model with instrumental variables (IV) (Bascle, 2008; Greene, 2008). We apply a Hausman-Test to compare fixed- and random-effects models (Hausman, 1987). There was no significant difference in the estimates. Therefore, we chose the fixed effects specification, as it allows us to account for unobserved firm specific characteristics, a further source of potential endogeneity. We follow Anderson *et al* (2003), who suggest the inclusion of measures of firm size and risk as appropriate instruments in the first stage of the estimation to account for potential endogeneity between performance and family involvement. As Anderson *et al* (2003) we use the natural log of total assets and the square of the natural log of total assets as instruments. Further, we include leverage, calculated as the ratio of long-term debt to equity, as additional instrument variable. We use the orthog() option to test whether these instruments are appropriately exogenous. The insignificant C statistics for each of them (ln(total assets): C=0.844, p= 0.3582; ln(total assets)^2: C=0.935, p= 0.3337; leverage: C=0.446, p= 0.5044) support the validity of the instruments (Baum, Schaffer, & Stillman, 2003). We also instrument the interaction terms between family management and international diversification and family management and product diversification by including interactions between the two measures of diversification and the three instrument variables. We further tested our model for under- and over-identification and weak instruments. Kleibergen-Paap (Kleibergen & Paap, 2006), Sargan (Sargan, 1988) and Cragg-Donald statistics (Cragg & Donald, 1993; Stock, Wright, & Yogo, 2002) confirm the validity and strength of the chosen instruments and appropriate model identification (Baum *et al.*, 2003; Baum, Schaffer, & Stillman, 2007). In order to additionally account for potential endogeneity of current year values of family management, international diversification, product diversification and moderators, we further lag these variables by one year (Hamilton & Nickerson, 2003). In addition, we control for time effects by including

year dummies. To account for potential serial correlation we estimate all of our models by using kernel-based autocorrelation-consistent (AC) standard errors (Baum, 2006).

In Table 1 we present descriptive statistics and the correlation matrix for the total sample. The German sample firms are more diversified internationally than diversified across different industries in terms of both average (international diversification$_{mean}$=0.4991; product diversification$_{mean}$=0.1226) and maximum values (international diversification$_{max}$=0.9695; product diversification$_{max}$=0.7874). We calculated the variance inflation factors (VIF) for the main explanatory variables in preliminary analysis to ensure that multicollinearity is not an issue. The VIFs for the independent and moderator variables, remain under 5.40, well below the suggested cut off point of 10, which would indicate problems of multicollinearity (Neter, Wasserman, & Kutner, 1985).

Insert Table 1 and Table 2 about here

Table 2 summarizes our regression results. The first model shows our base model only including the control variables. Model 2 adds the direct effect of family management. We find support for hypothesis 1, with a significant positive impact of the proportion of family members in the TMT on performance ($p<0.01$). This positive direct impact remains significant across all models. The findings suggest that increasing the proportion of family members by 1%, increases performance by 3.58%. Models 3-5 test whether engagement in different diversification strategies moderates this relationship between the proportion of family managers and performance by adding the interaction terms between family management and international diversification (Model 3) and family management and product diversification (Model 4). F-statistics show that model fit increases when we consider the moderating role of diversification strategies. Model 5, including

both interaction terms, represents our full model. We consistently find a significant negative interaction term between family management and international diversification ($p<0.05$). This provides support for our hypothesis 2. With increasing international diversification the positive impact of a higher proportion of family members decreases significantly. Hypothesis 3 is also supported by the significant positive interaction effect between product diversification and family management in model 5 albeit less clear and at a lower level of significance ($p<0.10$).

Insert Figure 1 about here

The nature of these interactions is further illustrated in figure 1. The graphs in this figure represent the relationship between family management and performance at different levels of international diversification (figure 1a) and product diversification (figure 1b) including their mean level, and one and two standard deviations above and below mean level. The interaction plot in figure 1a shows the clear weakening effect of increasing international diversification on the positive impact of higher proportions of family members in the TMT. Vice versa the positive impact of family management on performance is reinforced with decreasing levels of international diversification. Figure 1b suggests that the picture is less straightforward in the case of product diversification. First, the moderating impact of product diversification is weaker as the variations in slope are lower than for international diversification. Second, the positive, reinforcing effect of higher levels of product diversification can be observed only if a certain proportion of family members is already present in the TMT. In this case, the positive impact of an increasing number of family members in the TMT is reinforced with increased product diversity of the firm, while lower levels of product diversification have a weakening effect.

Robustness checks

We conducted a number of additional robustness checks to support our findings. The results can be obtained from the authors upon request. First, as a number of empirical studies suggest inverted u-shaped relationships for product diversification and performance (see Palich *et al.*, 2000 for a meta analysis) and for international diversification and performance (Hitt, Tihanyi, Miller *et al.*, 2006) we tested whether interactions of family management with the squared terms change the substance of our results. While the linear interaction with international diversification stays significantly negative, the squared interaction term is not significant for international diversification. For product diversification, however, the interaction with the squared term is significantly negative while the interaction with the linear term remains positive and significant. This suggests that there might be a curvilinear, diminishing moderation effect at higher levels of product diversification. We will explore this further in our discussion section, using a split sample analysis. Second, we ran our models with a subsample where we excluded highly diversified firms, i.e. those firms in the top quartile of international and product diversification. The substance of the results remains the same, confirming that our results hold when we exclude the most extreme cases. Third, we use a measure of family involvement combining family management and family governance. This makes our results comparable to countries, which do not share the German two-tier system. Our results remain the same with the exception of an insignificant interaction term between family involvement and product diversification. Finally, we conducted a subsample analysis to better understand the impact of family ownership. We first ran our models for all firms with family ownership above 50%. Our results stay the same but the coefficients for both family management and the interaction terms increase. This suggests that stronger family influence enhances the effects of family managers on performance.

Discussion and Conclusion

In this study we find that the overall effect of a higher proportion of family managers on the top management team on performance is positive, which is in line with recent empirical findings about the direct impact of family managers (Kowalewski, Talavera, & Stetsyuk, 2010; Miller *et al.*, 2013). More importantly, we show that this relationship is not universally valid but contingent on contextual factors. Our findings show that international diversification negatively moderates the relationship between family managers and performance. Product diversification on the other hand positively moderates this relationship. These results confirm that context and the associated strategic choices clearly matter. Our study contributes specifically to the understanding of impact of contextual factors on the relationship between family management and performance (Miller *et al.*, 2013) by showing how the corporate strategic choices of product and international diversification affect this key relationship. More generally, having focused on the benefits of human and social capital offered by family and professional managers our study also contributes to ongoing work in resource-based theory to develop a more comprehensive understanding of the contextual factors shaping the performance benefits of resources (Barney and Mackey, 2016; Teece 2011; Nyberg, Moliterno, Hale and Leepak 2014). Here we contribute to lines of enquiry that extend earlier work that focused primarily on environmental contingencies by focusing on specific organisational and strategic characteristics of the firm (Lioukas *et al.*, 2016).

To extend our understanding of the focal relationships we conducted a comparative subsample analysis (Carpenter & Westphal, 2001; Cassiman & Veugelers, 2006; Mayer, Stadler, & Hautz, 2015; Miller *et al.*, 2013). While the interaction term analysis shows how contextual factors such as international and product diversification shape the relationship between family management and performance, this approach examines directly the performance impact of family managers under

specific contextual conditions (Klingebiel & Rammer, 2014; Miller *et al.*, 2013). We formed subsamples representing different types of strategic approaches firms can choose in terms of international and product diversification: All firms characterized by international diversification levels below the sample median were classified as "low international diversification" (836 observations), those above the sample median as "high international diversification" (845 observations). All firms characterized by product diversification levels below the sample median were classified as "low product diversification" (846 observations), those above the sample median as "high product diversification" (826 observations). In addition we classified those in the 3rd quartile (between the 50th and 75th percentile) as "moderate product diversification" (397 observations), and those above the 75th percentile as "very high product diversification". We added these two last subsamples based on quartiles as our robustness checks suggested a possible curvilinear moderation effect. It is also a sensible subsample as those firms in the subsample of "low product diversification" are single business firms, i.e. they are not diversified at all (see the descriptive statistics in Table 3).

Insert Table 3 and Table 4 about here

Our sub-sample analysis suggests that family managers perform well at low levels of international diversification while they will have a negative impact on performance when international diversification levels are high (see Table 4). The sub-sample analysis also suggests that the positive impact of family managers is restricted to moderate levels of product diversification while very high levels of product diversification lead to a negative impact. The advantages of the human capital offered by professional managers seems to be more pronounced at very high levels of diversification where it outweighs the advantages family managers have in terms of social capital. The findings may also reflect the inability of family managers to stretch

their social capital advantages across a particularly wide range of industries. Future studies could explore such possible non-linear effects both empirically and conceptually and consider the boundary conditions associated with family managers' social capital.

Overall, our findings suggest that families and outside investors face a dilemma. Prior research argues that the core motivation of families is to retain control of the business and to pass on firm and family wealth to later generations (Casson, 1999; Gomez-Mejia *et al.*, 2007a; Miller *et al.*, 2005). International diversification can reduce country specific risk and hence preserve wealth for the next generation. For internationalization to generate positive performance outcomes, family firms, however, need to involve professional managers in the TMT, reducing family influence. In terms of financial performance there may be a choice of either pursuing a strategy that runs counter to the frequently espoused strategy of "global-focusing" (Meyer, 2006) or reducing the involvement of family managers. In short, in the case of international diversification there is trade-off between family involvement and performance. With regard to product diversification the implications are more nuanced. Here greater involvement of family managers in the TMT offers performance benefits at focused firms as well as at moderate levels of product diversification. For firms that are highly product-diversified our findings again suggest that the involvement of professional managers needs to be increased in order to improve performance.

The trade-offs and challenges inherent in these complex strategic choices are also reflected in previous studies of diversification strategy. Our findings may help to explain that some studies, such as those by Anderson and Reeb (2003) and Gomez-Mejia *et al*. (Gomez-Mejia *et al.*, 2010) find that family firms are more focused whereas Hautz *et al.* (2013) show that higher levels of family ownership have a negative impact on international but a positive one on product diversification. The differences in the findings may reflect different choices by different samples

of family firms with regard to the tensions between family involvement in management and the pursuit of different patterns of corporate strategy. Although we have focused on the relationship between family management and performance our findings thus help shed some light on concerns in the literature on diversification and performance. As a recent review paper (Ahuja & Novelli, 2017) points out, the relationship between diversification and performance is contingent, not univocal.

Conceptually, the dilemma arises out of tensions between the capabilities of family managers as underpinned by their managerial and social capital and the interests and the motivational factors highlighted by agency and stewardship theories (Miller *et al.*, 2013). This points to opportunities for deepening the understanding of the performance impact of family managers by developing an integrative approach in which a resource and capability orientated approach is set alongside work based on both agency and stewardship theories (Miller *et al.*, 2013). Whereas both agency and stewardship theory explain the possible differential impact of family managers by considering their specific sets of preferences and interests, the focus on managerial capital highlights the capability of managers to act on their interests. Such an integrative perspective has recently been suggested by Chrisman *et al*. (2015) who explore how configurations of ability and willingness of family managers impacts on firm innovation. While Chrisman *et al*. (2015) define ability in terms of discretion we suggest that a focus on the resources and capabilities that the managers contribute to the firm, such as the managerial and social capital considered in this paper, can further enrich such an approach.

Our findings point to a number of possible areas for further research. First, from a family perspective it would be important to understand how the social and human capital of family managers can be developed through the right type of experience and education in order to enhance

their contribution to a TMT. For example, an interesting question would be whether family managers with relevant international experience can have a positive impact on performance in highly internationalized firms. A related question could be whether family managers can transfer learning gained during diversification to internationalization and vice versa. Recent research by Mayer *et al.* (2015) suggests that is possible as they showed that firms diversify along both dimensions when they are experienced in either product or international diversification. The integrative approach points at fruitful areas of enquiry by facilitating research on, for example, the conditions under which family managers are more likely to invest in the development of capital and capabilities that may overcome any disadvantages. Micro-level studies can thereby illuminate if and how idiosyncratic interests and motivations interact with the development of the social and human capital of individual family managers.

Second, future studies could combine the focus on the extent of family involvement on the top management with the nuanced perspectives being developed with regard to the diversity of TMTs and management boards (e.g. Sundaramurthy *et al.*, 2014) by accounting for overall patterns of demographic, educational and experience characteristics in the top management board. A question that could be explored here is if there are particular combinations of family and professional managers on TMTs that can generate a positive impact on performance. Other research opportunities lie in exploring the effects of changes in the strategic context, and in the associated strategic choices. Specifically, work could track the performance implications of changes in a firm's corporate strategy, notably a reduction in the level of international diversification, whilst maintaining family involvement in the TMT, and vice versa.

A limitation of our study is its use of a specific sample of publicly traded German companies, neglecting non-listed privately held family firms and its particular focus on a specific national

context where historical, economic and cultural conditions may have affected the nature of family managers' human and social capital. Future research could therefore consider different national contexts and smaller firms which are not listed. The listed nature and the large size of firms in our sample are important characteristics which we could expect to have an influence on firm strategy. Whether smaller non-listed family firms behave in the same manner is a question that deserves further attention. Another limitation of our work is that we did not measure human and social capital directly. Hence, human and social capital remain a black box that needs further investigation. An option could be the investigation of social networks across industries and countries through board appointments of managers. Managerial incentives and the role of institutional investors could play a role here as well. Human capital could potentially be captured by the personal experience of managers. Unfortunately, none of this data was available for our study. In addition, our findings are limited by the statistical method we applied.

Overall our study enhances the understanding of the contextual factors that affect the relationship between family management and performance (Miller *et al.*, 2013). We demonstrate that key strategic decisions relating to a firm's corporate strategy and the involvement of family and professional managers in the TMT are interdependent in terms of their effect on performance. More generally, our findings suggest that decisions about corporate strategy and the configuration of the TMT should not be considered in isolation.

Acknowledgement:

We would like to thank Harry Bowen and James Chrisman for their useful comments and invaluable guidance on earlier versions of this paper.

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Tables

Table 1: Descriptive statistics and Correlations: Total sample

	variable	mean	s.d.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1)	Firm Performance	0.01	0.17	1.000																		
(2)	Family Management	0.14	0.23	-0.1110*	1.000																	
(3)	International Div	0.50	0.26	0.1004*	-0.1881*	1.000																
(4)	Product Div	0.12	0.15	0.0707*	-0.1646*	0.1691*	1.000															
(5)	Family Ownership	0.28	0.28	0.0142	0.2926*	-0.1261*	-0.0705*	1.000														
(6)	Family Governance	0.09	0.14	0.0001	-0.0196	-0.0185	0.0312	0.3998*	1.000													
(7)	Founder	0.66	0.47	-0.1046*	0.1685*	-0.0702*	-0.0627*	-0.3926*	-0.0874*	1.000												
(8)	Firm Age	60.50	53.83	0.1625*	-0.3133*	0.2835*	0.1935*	-0.0806*	-0.1338*	-0.2960*	1.000											
(9)	Firm Age (log)	1.56	0.49	0.2155*	-0.3213*	0.2473*	0.1642*	-0.0348	-0.0758*	-0.2930*	0.9052*	1.000										
(10)	Firm Capital Intensity	0.18	0.57	-0.0173	-0.0166	-0.0096	0.0005	0.0465	0.0482*	-0.0574*	0.0027	0.0075	1.000									
(11)	Firm Beta	0.61	0.28	-0.1578*	0.0648*	0.1813*	0.024	-0.1440*	-0.0759*	0.1717*	-0.1923*	-0.2561*	-0.0504*	1.000								
(12)	Firm Size	17067	58805	0.0415	-0.1604*	0.2192*	0.2895*	-0.1218*	-0.0863*	-0.0994*	0.1714*	0.1425*	-0.0264	0.2454*	1.000							
(13)	Firm Slack resources	2.18	2.04	-0.0819*	0.1294*	-0.0684*	-0.1170*	0.0430	0.0849*	0.0704*	-0.0838*	-0.1279*	0.0700*	-0.0024	-0.1404*	1.000						
(14)	Prior Firm Performance	-3.02	44.59	0.3486*	-0.0357	0.1210*	0.0867*	0.0200	0.0233	-0.1025*	0.1498*	0.1658*	-0.0282	-0.0567*	0.0786*	0.0619*	1.000					
(15)	Industry Performance	0.67	4.34	0.1441*	-0.0630*	0.0393	0.0653*	-0.0794*	-0.0553*	-0.0893*	0.1584*	0.1806*	-0.0049	-0.0938*	0.0720*	-0.0616*	0.1423*	1.000				
(16)	Industry Size	1215962	1524995	0.0610*	-0.1805*	0.1941*	0.2015*	-0.0581*	-0.0974*	-0.1241*	0.2449*	0.2589*	0.0347	0.0896*	0.3930*	-0.1343*	0.1116*	0.2067*	1.000			
(17)	Industry Size (log)	13.88	0.95	0.0326	-0.0151	-0.037	0.0021	-0.0106	-0.0384	-0.0021	0.0279	0.0237	-0.0169	-0.0153	0.0227	-0.0157	0.031	0.013	0.0285	1.000		
(18)	Industry Competition	32.54	14.11	-0.0598*	0.0479*	-0.2674*	0.0523*	0.0852*	0.0151	-0.0429	-0.1099*	-0.1071*	-0.007	-0.0333	0.0884*	0.0351	-0.0335	0.029	-0.01	0.0305	1.000	
(19)	GDP Growth	1.45	1.24	0.0428	0.0361	-0.0082	-0.0011	-0.0379	0.0114	-0.0026	0.0036	0.0046	-0.036	-0.0381	0.0048	0.0251	0.1532*	0.2300*	0.047	0.044	0.0166	1.000
(20)	Institutional Development	5.32	0.52	-0.1310*	0.0463	-0.0002	0.1079*	0.0586*	0.0019	0.0172	0.0422	0.0058	0.0395	-0.0243	0.0159	0.0662*	-0.0174	-0.2723*	-0.0551*	0.0417	0.0565*	0.1885*

N = 1710 observations; * p<0.05,

Table 2: Moderating effect of international and product diversification on the family management and performance relationship

	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
Family Ownership	-0.008	-0.841**	-0.538***	-0.606***	-0.433***	-0.491**
Family Governance	-0.029	1.423**	0.919***	1.003**	0.729***	0.825**
Founder	0.000	-0.392**	-0.235**	-0.275***	-0.177**	-0.184**
Firm Age	0.050	0.743**	0.490***	0.533**	0.387**	0.381**
Firm Capital Intensity	0.005	-0.022	-0.014	-0.016	-0.012	-0.016
Firm Risk	-0.079***	-0.074	-0.084**	-0.077*	-0.088***	-0.086**
Firm Size	-0.000	0.000	-0.000	0.000	-0.000	-0.000
Firm Slack Resources	0.007***	0.019**	0.014**	0.014**	0.011**	0.011**
Prior Frim Performance	0.000***	-0.000	-0.000	-0.000	-0.000	-0.000
Industry Performance	0.001	-0.001	0.000	-0.000	0.000	0.001
Industry Size	0.005	-0.006	-0.002	-0.004	-0.001	0.000
Industry Competition	-0.001	-0.000	-0.001	-0.000	-0.001	-0.001
GDP Growth	0.000	0.008	0.003	0.006	0.001	0.002
Institutional Development	-0.033	-0.253**	-0.171**	-0.184**	-0.135**	-0.134**
Product Diversification	-0.020	-0.036	-0.037	-0.291	-0.313	-1.167**
International Diversification	-0.189***	-0.563***	-0.199	-0.435***	-0.092	-0.180
Family Management		**3.580*** **	**2.769*** **	**2.419*** **	**2.235*** **	**2.327*** **
Family Management x International Diversification			**-1.194***		**-1.381** **	**-2.897***
Family Management x Product Diversification				**1.410**	**1.504***	**7.529** **
International Diversification²						**0.062**
Product Diversification²						**1.486***
Family Management x International Diversification²						**2.088**
Family Management x Product Diversification²						**-13.536** **
Observations	1710	1710	1710	1710	1710	1710
F	5.927***	0.974	1.925***	1.509*	2.423***	1.930***

* p<0.10, ** p<0.05, *** p<0.01

Table 3: Descriptive statistics and Correlations: Sub Sample Analysis

		Low International Diversification		High International Diversification		Low Product Diversification		High Product Diversification		Medium Product Diversification >50<75 quart		Very High Product Diversification >75 quart	
	Variable	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.	mean	s.d.
(1)	Firm Performance	0.00	19.19	0.02	13.80	0.00	20.21	0.02	12.90	0.01	14.61	0.03	10.03
(2)	Family Management	0.18	0.26	0.10	0.20	0.17	0.25	0.11	0.21	0.13	0.22	0.08	0.18
(3)	International Div	0.28	0.16	0.72	0.11	0.48	0.26	0.53	0.26	0.48	0.28	0.58	0.23
(4)	Product Div	0.10	0.14	0.14	0.17	0.00	0.00	0.25	0.13	0.15	0.07	0.35	0.10
(5)	Family Ownership	0.33	0.29	0.24	0.26	0.28	0.26	0.28	0.29	0.32	0.30	0.24	0.28
(6)	Family Governance	0.10	0.15	0.08	0.13	0.09	0.14	0.09	0.15	0.08	0.12	0.11	0.18
(7)	Founder	0.68	0.47	0.63	0.48	0.69	0.46	0.62	0.48	0.59	0.49	0.66	0.48
(8)	Firm Age	45.55	44.80	75.24	57.19	49.94	50.74	71.50	54.97	72.75	50.61	70.77	59.22
(9)	Firm Age (log)	1.44	0.45	1.67	0.50	1.45	0.49	1.66	0.47	1.72	0.39	1.61	0.53
(11)	Firm Capital Intensity	0.18	0.53	0.19	0.61	0.17	0.61	0.20	0.54	0.23	0.62	0.17	0.44
(10)	Firm Beta	0.56	0.26	0.65	0.28	0.62	0.29	0.60	0.26	0.58	0.26	0.61	0.26
(12)	Firm Size	6407	26534	27651	77218	4752	12465	30337	81623	33071	92624	27816	68783
(13)	Firm Slack resources	2.29	2.61	2.04	1.23	2.42	2.33	1.93	1.66	1.86	1.64	1.92	1.27
(14)	Prior Firm Performance	-7.04	46.24	1.41	41.68	-5.24	46.16	-0.70	43.43	-4.65	48.89	4.31	33.15
(15)	Industry Performance	0.45	4.42	0.92	4.24	0.58	4.19	0.75	4.54	0.62	4.10	0.97	4.97
(16)	Industry Size	959701	966306	1473316	1898972	884493	891659	1568375	1925559	1757378	2227415	1395336	1551177
(17)	Industry Size (log)	13.88	0.91	13.87	0.97	13.87	0.96	13.88	0.92	13.93	0.93	13.84	0.90
(18)	Industry Competition	35.66	13.95	29.43	13.55	31.56	12.78	33.47	15.36	33.68	15.08	33.26	15.57
(19)	GDP Growth	1.46	1.25	1.42	1.24	1.48	1.23	1.39	1.24	1.33	1.23	1.42	1.25
(20)	Institutional Development	5.31	0.52	5.31	0.52	5.24	0.47	5.37	0.55	5.34	0.55	5.37	0.55
	Observations	836		845		846		826		397		406	

Table 4: Subsample analysis: Impact of Family Management on Performance

	Low International Div	*High International Div*	*Low Product Div*	*High Product Div*	*Moderate Product Div >50<75 quart*	*Very high Product Div >75 quart*
Family Management	**1.490*** **	**-4.565***	**2.809** **	**-6.292**	**2.716***	**-0.927***
International Diversification	-0.424**	-0.617	-0.522**	-0.289	-0.391	0.096
Product Diversification	0.122	-0.194		0.013	-0.811	-0.157
Family Ownership	-0.236*	1.148	-0.546**	1.660	-0.760	0.287*
Family Governance	0.495*	-1.618	0.854*	-3.415	2.247	-0.176
Founder	-0.103	0.614	-0.523**	0.222	0.175*	0.063
Firm Age	0.195	-1.092	0.774*	-0.434	-0.057	-0.062
Firm Capital Intensity	-0.017	0.041	-0.023	0.067	-0.023	0.003
Firm Risk	-0.010	0.081	-0.050	-0.245	0.044	-0.028
Firm Size	0.000	-0.000	-0.000	-0.000	0.000	-0.000
Firm Slack Resources	0.017***	0.025	0.012	-0.052	0.066*	0.006
Prior Firm Performance	0.000	0.001	-0.000	0.001	0.000	0.000
Industry Performance	-0.002	0.002	-0.000	0.007	-0.007	-0.001
Industry Size	0.009	0.014	-0.012	-0.007	0.014	0.002
Industry Competition	-0.002	-0.001	-0.003	-0.001	-0.002	0.000
GDP Growth	0.008	0.001	-0.003	-0.023	0.044	0.036**
Institutional Development	-0.265**	0.194	-0.326*	0.181	-0.214	-0.006
Observations	836	845	846	826	397	406
F	1.376	0.407	0.633	0.335	1.197	1.315

* p<0.10, ** p<0.05, *** p<0.01

Figures

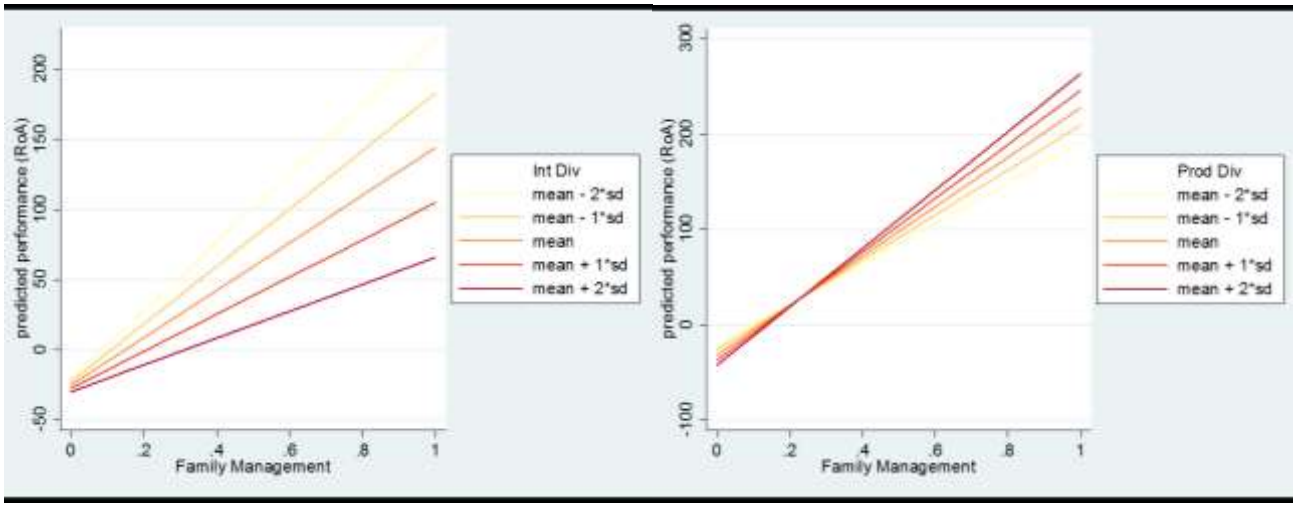

Figure 1a: Moderating impact of International diversification of the relationship between family management and firm performance

Figure 1b: Moderating impact of Product diversification of the relationship between family management and firm performance